

of bioactive peptides containing 2 to 30 amino acid units, proteins, antibody fragments, mono- and oligosaccharides; Dm is selected from the group consisting of photosensitizers, photoactive molecules, and phototherapy agents; a and c independently vary from 1 to 10; b and d independently vary  
5 from 1 to 30.

3. The compound of claim 2 wherein each  $W_1$ , and  $W_2$  is  $-C(CH_3)_2$ ; each  $K_1$  and  $K_2$  is  $-(CH_2)_4CO-$ ; each Q,  $X_1$  and  $X_2$  is a single bond; each  $R^1$  to  $R^9$ ,  $Y_1$  and  $Z_1$  is H;  $Y_2$  is a tumor-specific agent; and  $Z_2$  is a phototherapy agent.

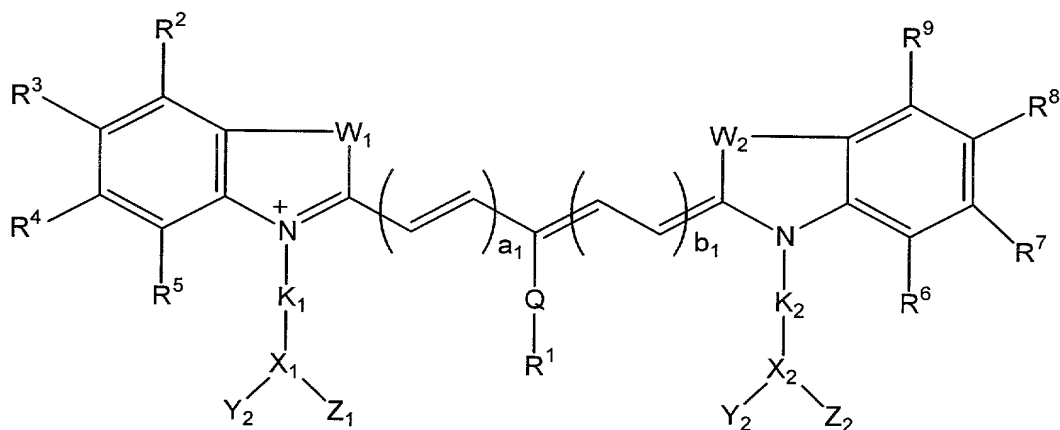
4. The compound according to claim 3 wherein the said tumor-specific agent is a bioactive peptide containing 2 to 30 amino acid units.

5. The compound according to claim 4 wherein the said tumor-specific agent is octreotate and bombesin (7-14).

6. The compound according to claim 3 wherein the said phototherapy agent is a photosensitizer.

7. The compound according to claim 6 wherein the said photosensitizer is 2-[1-hexyloxyethyl]-2-devinylpyropheophorbide-a.

8. A method for performing a diagnostic and therapeutic procedure comprising administering to an individual an effective amount of the composition of cyanine dye bioconjugate of Formula 1



- 5 wherein  $W_1$  and  $W_2$  may be the same or different and are selected from the group consisting of  $-CR^{10}R^{11}$ ,  $-O-$ ,  $-NR^{12}$ ,  $-S-$ , and  $-Se$ ;  $Y_1$ ,  $Y_2$ ,  $Z_1$ , and  $Z_2$  are independently selected from the group consisting of hydrogen, tumor-specific agents, phototherapy agents,  $-CONH-Bm$ ,  $-NHCO-Bm$ ,  $-(CH_2)_a-CONH-Bm$ ,  $-CH_2-(CH_2OCH_2)_b-CH_2-CONH-Bm$ ,  $-(CH_2)_a-NHCO-Bm$ ,  $-CH_2-(CH_2OCH_2)_b-CH_2-$   
 10  $NHCO-Bm$ ,  $-(CH_2)_a-N(R^{12})-(CH_2)_b-CONH-Bm$ ,  $-(CH_2)_a-N(R^{12})-(CH_2)_c-NHCO-Bm$ ,  $-(CH_2)_a-N(R^{12})-CH_2-(CH_2OCH_2)_b-CH_2-CONH-Bm$ ,  $-(CH_2)_a-N(R^{12})-CH_2-$   
 $(CH_2OCH_2)_b-CH_2-NHCO-Bm$ ,  $-CH_2-(CH_2OCH_2)_b-CH_2-N(R^{12})-(CH_2)_a-CONH-Bm$ ,  $-CH_2-(CH_2OCH_2)_b-CH_2-N(R^{12})-(CH_2)_a-NHCO-Bm$ ,  $-CH_2-(CH_2OCH_2)_b-CH_2-N(R^{12})-$

CH<sub>2</sub>-(CH<sub>2</sub>OCH<sub>2</sub>)<sub>d</sub>-CONH-Bm, -CH<sub>2</sub>-(CH<sub>2</sub>OCH<sub>2</sub>)<sub>b</sub>-CH<sub>2</sub>-N(R<sup>12</sup>)-CH<sub>2</sub>-(CH<sub>2</sub>OCH<sub>2</sub>)<sub>d</sub>-NHCO-Bm, -CONH-Dm, -NHCO-Dm, -(CH<sub>2</sub>)<sub>a</sub>-CONH-Dm, -CH<sub>2</sub>-(CH<sub>2</sub>OCH<sub>2</sub>)<sub>b</sub>-CH<sub>2</sub>-CONH-Dm, -(CH<sub>2</sub>)<sub>a</sub>-NHCO-Dm, -CH<sub>2</sub>-(CH<sub>2</sub>OCH<sub>2</sub>)<sub>b</sub>-CH<sub>2</sub>-NHCO-Dm, -(CH<sub>2</sub>)<sub>a</sub>-N(R<sup>12</sup>)-(CH<sub>2</sub>)<sub>b</sub>-CONH-Dm, -(CH<sub>2</sub>)<sub>a</sub>-N(R<sup>12</sup>)-(CH<sub>2</sub>)<sub>c</sub>-NHCO-Dm, -(CH<sub>2</sub>)<sub>a</sub>-N(R<sup>12</sup>)-CH<sub>2</sub>-(CH<sub>2</sub>OCH<sub>2</sub>)<sub>b</sub>-CH<sub>2</sub>-CONH-Dm, -(CH<sub>2</sub>)<sub>a</sub>-N(R<sup>12</sup>)-CH<sub>2</sub>-(CH<sub>2</sub>OCH<sub>2</sub>)<sub>b</sub>-CH<sub>2</sub>-NHCO-Dm, -CH<sub>2</sub>-(CH<sub>2</sub>OCH<sub>2</sub>)<sub>b</sub>-CH<sub>2</sub>-N(R<sup>12</sup>)-(CH<sub>2</sub>)<sub>a</sub>-CONH-Dm, -CH<sub>2</sub>-(CH<sub>2</sub>OCH<sub>2</sub>)<sub>b</sub>-CH<sub>2</sub>-N(R<sup>12</sup>)-(CH<sub>2</sub>)<sub>a</sub>-NHCO-Dm, -CH<sub>2</sub>-(CH<sub>2</sub>OCH<sub>2</sub>)<sub>b</sub>-CH<sub>2</sub>-N(R<sup>12</sup>)-CH<sub>2</sub>-(CH<sub>2</sub>OCH<sub>2</sub>)<sub>d</sub>-CONH-Dm, -CH<sub>2</sub>-(CH<sub>2</sub>OCH<sub>2</sub>)<sub>b</sub>-CH<sub>2</sub>-N(R<sup>12</sup>)-CH<sub>2</sub>-(CH<sub>2</sub>OCH<sub>2</sub>)<sub>d</sub>-NHCO-Dm, -(CH<sub>2</sub>)<sub>a</sub>-N R<sup>12</sup>R<sup>13</sup>, and -CH<sub>2</sub>(CH<sub>2</sub>OCH<sub>2</sub>)<sub>b</sub>-CH<sub>2</sub>N R<sup>12</sup>R<sup>13</sup>; K<sub>1</sub> and K<sub>2</sub> are independently selected from

the group consisting of C<sub>1</sub>-C<sub>30</sub> alkyl, C<sub>5</sub>-C<sub>30</sub> aryl, C<sub>1</sub>-C<sub>30</sub> alkoxy, C<sub>1</sub>-C<sub>30</sub> polyalkoxyalkyl, C<sub>1</sub>-C<sub>30</sub> polyhydroxyalkyl, C<sub>5</sub>-C<sub>30</sub> polyhydroxyaryl, C<sub>1</sub>-C<sub>30</sub> aminoalkyl, saccharides, peptides, -CH<sub>2</sub>(CH<sub>2</sub>OCH<sub>2</sub>)<sub>b</sub>-CH<sub>2</sub>-, -(CH<sub>2</sub>)<sub>a</sub>-CO-, -(CH<sub>2</sub>)<sub>a</sub>-CONH-, -CH<sub>2</sub>-(CH<sub>2</sub>OCH<sub>2</sub>)<sub>b</sub>-CH<sub>2</sub>-CONH-, -(CH<sub>2</sub>)<sub>a</sub>-NHCO-, -CH<sub>2</sub>-(CH<sub>2</sub>OCH<sub>2</sub>)<sub>b</sub>-CH<sub>2</sub>-NHCO-, -(CH<sub>2</sub>)<sub>a</sub>-O-, and -CH<sub>2</sub>-(CH<sub>2</sub>OCH<sub>2</sub>)<sub>b</sub>-CO-; X<sub>1</sub> and X<sub>2</sub> are single bonds, or are independently selected from the group consisting of nitrogen, saccharides, -CR<sup>14</sup>-, -CR<sup>14</sup>R<sup>15</sup>-, -NR<sup>16</sup>R<sup>17</sup>-, C<sub>5</sub> - C<sub>30</sub> aryl; Q is a single bond or is selected from the group consisting of -O-, -S-, -Se-, and -NR<sup>18</sup>; a<sub>1</sub> and b<sub>1</sub> independently vary from 0 to 5; R<sup>1</sup> to R<sup>13</sup>, and R<sup>18</sup> are independently selected from the group

consisting of hydrogen, C<sub>1</sub>-C<sub>10</sub> alkyl, C<sub>5</sub>-C<sub>20</sub> aryl, C<sub>1</sub>-C<sub>10</sub> alkoxy, C<sub>1</sub>-C<sub>10</sub> polyalkoxyalkyl, C<sub>1</sub>-C<sub>20</sub> polyhydroxyalkyl, C<sub>5</sub>-C<sub>20</sub> polyhydroxyaryl, C<sub>1</sub>-C<sub>10</sub> aminoalkyl, cyano, nitro, halogens, saccharide, peptides, -CH<sub>2</sub>(CH<sub>2</sub>OCH<sub>2</sub>)<sub>b</sub>-CH<sub>2</sub>-OH, -(CH<sub>2</sub>)<sub>a</sub>-CO<sub>2</sub>H, -(CH<sub>2</sub>)<sub>a</sub>-CONH-Bm, -CH<sub>2</sub>-(CH<sub>2</sub>OCH<sub>2</sub>)<sub>b</sub>-CH<sub>2</sub>-CONH-Bm, -(CH<sub>2</sub>)<sub>a</sub>-NHCO-Bm, -CH<sub>2</sub>-(CH<sub>2</sub>OCH<sub>2</sub>)<sub>b</sub>-CH<sub>2</sub>-NHCO-Bm, -(CH<sub>2</sub>)<sub>a</sub>-OH and -CH<sub>2</sub>-(CH<sub>2</sub>OCH<sub>2</sub>)<sub>b</sub>-CO<sub>2</sub>H; R<sup>14</sup> to R<sup>17</sup> are independently selected from the group

consisting of hydrogen, C<sub>1</sub>-C<sub>10</sub> alkyl, C<sub>5</sub>-C<sub>20</sub> aryl, C<sub>1</sub>-C<sub>10</sub> alkoxy, C<sub>1</sub>-C<sub>10</sub> polyalkoxyalkyl, C<sub>1</sub>-C<sub>20</sub> polyhydroxyalkyl, C<sub>5</sub>-C<sub>20</sub> polyhydroxyaryl, C<sub>1</sub>-C<sub>10</sub>